MAR 1952 51-4C

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REPORT

CD NO.

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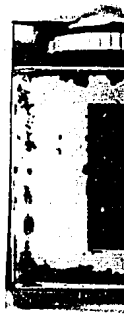

COUNTRY	USSR	DATE OF INFORMATION	1953
SUBJECT	Scientific - Electronics, television; organization of science, VNORiE		
HOW PUBLISHED	Monthly periodical	DATE DIST.	25 Sep 1953
WHERE PUBLISHED	Moscow	NO. OF PAGES	4
DATE PUBLISHED	Jul 1953		
LANGUAGE	Russian	SUPPLEMENT TO REPORT NO.	

THIS IS UNEVALUATED INFORMATION

SOURCE Radio, No 7, pp 3-5.

SCIENTIFIC SESSION ON SOVIET TELEVISION RESEARCH

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The All-Union Scientific and Technical Society of Radio Engineering and Electric Communications imeni A. S. Popov (VNORiE), together with the Ministry of Communications, the Ministry of Electric Power Stations and Electrical Industry, the Ministry of Culture, and the Council of Radiophysics and Radio Engineering, Academy of Sciences USSR, held a scientific session in Moscow in honor of Radio Day. The subject of the session was problems in ultrashort-wave television and aural broadcasting. Participating in the session were representatives of scientific research institutes, higher educational institutions, communications enterprises, and plants from Moscow, Leningrad, Kiev, Rostov-on-Don, Odessa, Khar'kov, and many other cities.

The session was opened by Academician A. I. Berg, Chairman of the Administrative Board of VNORiE. Z. V. Topuria, Deputy Minister of Communications USSR and member of the Administrative Board of VNORiE, addressed the plenary session with a report on "The Development of Radio Engineering and Electric Communications in the Second Postwar Five-Year Plan." More than 40 reports were submitted at the plenary and section meetings of the session.

The work of the session was organized into three sections, namely, television broadcasting, aural broadcasting, and wire communications.

In the television broadcasting section (S. I. Katayev, Doctor of Technical Sciences, Director), a number of interesting reports on color television problems were submitted. A. K. Kustarev, in his report "Color Television Systems," discussed the basic known color television systems, their design principles and quality characteristics. He observed that the most important problem in color television is the development of a cheap tricolor receiving tube. In a report, "Quality of Color Transmission in Color Television," S. V. Novakovskiy cited the requirements imposed on the spectral characteristics of a television transmitter, discussed the principles underlying their calculation, and told of

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results of an analytical determination of distortions in color transmission and of methods to correct these distortions. I. A. Alekseyev's report, "Pressing Problems in the Development of Receiving Tubes for Color Television," dealt with the requirements imposed on elements of the receiving unit and also with the basic properties of luminophors used for the screens of receiving tubes.

In the resolutions on these reports, the section [presumably the television broadcasting section mentioned above] recommended that efforts be concentrated on the development of the most effective methods for compressing the frequency spectrum in color television systems and on the development of the simplest and most economical tricolor receiving tubes.

The existing system of television transmission does not permit truly "mass" service to the population and therefore the extensive introduction of wire television broadcasting is necessary. Wire television systems were discussed in reports by G. N. Sokolov and A. B. Polonskiy. The section noted in its resolutions that the development and introduction of wire television centers is an extremely important problem and recommended that an operational check of the systems thus far developed be organized in the very near future.

A report submitted by M. O. Glikikh and A. F. Sorenzon dealt with various methods for recording television programs on motion-picture film and recommended procedures to overcome the difficulties caused by the extremely rapid movement of the film in this type of recording. The section took note of the importance of the problems posed in this report and recommended more extensive work on film recording of television programs.

B. V. Krusser reported on the parameters of new television transmitting tubes and stated that these tubes will make it possible to obtain a picture of improved quality. The section recommended that work be continued on the development of transmitting tubes for color television and on tubes based on the use of the photoconductive effect.

In connection with the development of television broadcasting, the problem of methods and equipment for reducing television interference has become very important. In a report on this problem [illegible] Nikolayevskiy stated that considerable work was done in 1952 on the study of television interference sources and on the search for methods and equipment to eliminate them. Tests at 300 points in Moscow and Leningrad of a series of protective devices which were subject to strong interference produced positive results. Nikolayevskiy also gave recommendations for improving television receivers from the standpoint of interference rejection. In A. Ya. Freydbart's report "Methods of Suppressing Interference to Radio Broadcast Reception Created by Television Receivers," it was observed that interference created by television receivers is due mainly to fields of electric induction. The protective equipment developed can reduce this interference considerably and thus ensure normal operation of broadcast receivers located in the immediate vicinity of television receivers. In its resolutions on these reports, the section recommended the following measures: more rapid introduction of interference-suppressing equipment which has been developed for television receivers, better checking on interference sources and development of measures to reduce interference from them, use of interference-suppressing equipment in all television receivers now being produced.

In his report, "Modern Mobile Television Stations," V. S. Polonik gave a brief survey of modern field television transmissions, discussed the required signal-to-noise ratio under these conditions, and gave recommendations for further improvement of this type of television broadcasting. In its resolutions, the section called the development of the PTS-52 mobile television station a great accomplishment of industry and recommended the use of the PTS-52 in television centers and in various branches of the economy.

A. M. Varbanskiy's report, "Radio Relay Lines for Mobile Television Stations," dealt with the equipment used in the Moscow Television Center. The television radio-relay line makes possible regular field television broadcasting in Moscow. In its resolutions, the section recommended the installation of permanent antennas at the main points through which programs are transmitted with the help of relay lines. In addition, permanent "camera" cables should be laid to places from which field transmissions originate regularly. The development of methods to increase the interference rejection of radio-relay lines for mobile television stations should be intensified.

In a report, "Large-Screen Projection Television Equipment," V. I. Sardyko outlined the basic methods for obtaining a large screen with the help of a special cathode-ray tube. The section recommended accelerated introduction of projection-type developments and the establishment of a 3- x 4-m screen installation in Moscow. Industry should develop and produce television installations for collective use with 1- to 3-sq-m screens.

In his report, "A Method for Transmitting Television Signals Which Permits One to Compress the Frequency Band Required Without Impairing Picture Quality," S. I. Borovitskiy discussed the problem of using the statistical properties of the television signal to compress the frequency band in the channel. The section noted the feasibility of using the statistical properties of television signals for the development of methods for compressing the frequency band used in television transmissions.

The section also heard the following reports: "Transmission of Television Programs With the Help of Aircraft Relays," by P. V. Shmakov; "The Problem of Utilizing Reflection of Ultrashort Waves from the Moon for Television Broadcasting," by S. I. Katayev; "A Typical Television Ultrashort-Wave Radio Station," by A. I. Lebedev-Karmanov; "A Method for Studying Transients in Linear Systems," by R. D. Leytes and L. N. Gutman; and "Present-Day Requirements and Basic Trends in the Development of Television Receivers," by V. B. Ivavov.

G. B. Davydov's report, "Television Transmissions Using Coaxial Cables," was heard jointly with the section on wire communications. In this report, the characteristic distortions inherent to this type of transmission were discussed and some methods of reducing these distortions were pointed out. It was pointed out in the resolutions on this report that operating experience with an experimental television trunk line has shown that television transmissions impose a number of specific requirements on an interurban channel and on the television equipment. For this reason, the writing of norms for the television equipment and the associated interurban television channel should be speeded up.

The reports submitted at the session showed that considerable progress was made in the past year in television engineering, but gross deficiencies still remain. The number of scientific research organizations and plants concerned with the development and production of television equipment and television receivers is insufficient and their production base is weak. The number of television receivers produced by industry still lags behind demand. The scope of work on the development of equipment for interurban television broadcasting and color television systems is insufficient. The rapid elimination of these defects is a prerequisite for the extensive development of television broadcasting in the USSR.

At the concluding plenary session, the participants heard a report by A. P. Shchetinin on "Interference With Radio Reception and Methods of Reducing It." The session observed that industrial interference with radio reception is still a very important problem and recommended that scientific research and practical work in this field be continued, particularly on the development of protective

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devices for radio and television receivers. The session attached great importance to problems of suppressing radio interference and recommended that a number of reports on the results obtained be submitted at the next scientific session in 1954.

At the same plenary session, G. S. Savel'yev, Chief of the Technical Administration, Ministry of Electric Power Stations and the Electrical Industry, and P. A. Frolov, Chief of the Technical Division, Ministry of Communications, gave reports concerning the implementation of the recommendations of the 1952 session. After hearing the reports, the session noted that most of the recommendations were taken into consideration and introduced by the ministries. However, several recommendations are being introduced slowly, e.g., the method of remote control of the quality indexes of wire broadcasting points and the method of extending the underground cable lines used for rural radiofication. In addition, industry up to this time has taken no practical measures for the extensive introduction of collective antennas for television and radio broadcasting, despite the positive results obtained in using these antennas and the great need for their introduction.

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